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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|-----------------------|---------------------|------------------|
| 09/899,899 | 07/05/2001 | Olivier L. Jerphagnon | CALIP003 | 3593 |

22434 7590 01/15/2004

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| EXAMINER |
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AMARI, ALESSANDRO V

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| ART UNIT | PAPER NUMBER |
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2872

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/899,899

Applicant(s)

JERPHAGNON ET AL.

Examiner

Alessandro V. Amari

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) 2-7, 14, 15, 22-36, 38-40, 42, 44, 53 and 55-63 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 46-51 and 64 is/are allowed.
- 6) ☒ Claim(s) 1, 8-13, 37, 43, 45 and 52 is/are rejected.
- 7) ☒ Claim(s) 16-21, 41 and 54 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. This application contains claims 2-7, 14, 15, 22-36, 38-40, 42, 44, 47, 51, 53 and 55-63 are drawn to an invention nonelected with traverse in Paper No. 6. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 8-11, 13, 37, 43, 45 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara US Patent 6,256,125 in view of Duguay US Patent 5,671,304.

In regard to claims 1, 37 and 52, Uehara teaches (see Figure 3) an apparatus or cross-connect or method comprising a plurality of inputs (λn), each of the plurality of inputs configured to carry a plurality of lambda signals; a first stack (8-n) coupled to one of the inputs and configured to demultiplex the lambda signals carried on the inputs by wavelength respectively a plurality of outputs; and an optical switching matrix configured to switch the demultiplexed lambda signals from the first stack to the plurality of outputs without the need to convert the lambda signals to the electrical domain as described in column 7, lines 1-42.

Regarding claim 43, Uehara teaches that the first stack are array waveguide gratings as described in column 7, lines 1-6.

Regarding claim 45, Uehara teaches a plurality of optical switches to form a scalable cross-connect as shown in Figure 3 and as described in column 7, lines 1-42.

However, in regard to claims 1, 37 and 52, Uehara does not teach a plurality of input fibers and a first stack of substrates, each of which is coupled to one of the input fibers and a plurality of outputs, which are output fibers. Also, regarding claim 8, Uehara does not teach that each of the substrates of the first stack is a monolithic substrate nor regarding claim 9, that each of the substrates of the first stack comprise waveguide paths of unequal lengths nor regarding claim 10, that the waveguide paths of unequal lengths are interconnected with star couplers nor regarding claim 11, that the waveguide paths and the star couplers form a substantially symmetrical optical diffraction grating nor regarding claim 13 that each, of the substrates of the first stack demultiplex the lambda signals using interferometry.

In regard to claims 1, 37 and 52, Duguay discloses (see Figures 2 and 3) an apparatus or cross-connect or method comprising a plurality of input fibers (12), each of the plurality of input fibers configured to carry a plurality of lambda signals; a first stack of substrates (20), each of the substrates coupled to one of the input fibers and configured to demultiplex the lambda signals carried on the input fiber by wavelength respectively as described in column 5, lines 41-67 and column 6, lines 1-5; and a plurality of output fibers (14).

Regarding claim 8, Duguay discloses that each of the substrates of the first stack is a monolithic substrate as described in column 5, lines 7-12.

Regarding claim 9, Duguay discloses that each of the substrates of the first stack comprise waveguide paths of unequal lengths as shown in Figure 3 and as described in column 5, lines 41-67 and column 6, lines 1-5.

Regarding claim 10, Duguay discloses that the waveguide paths of unequal lengths are interconnected with star couplers as shown in Figure 3 and as described in column 5, lines 41-67 and column 6, lines 1-5.

Regarding claim 11, Duguay discloses that the waveguide paths and the star couplers form a substantially symmetrical optical diffraction grating as shown in Figure 3.

Regarding claim 13, Duguay discloses that each of the substrates of the first stack demultiplex the lambda signals using interferometry as described in column 6, lines 6-16.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the stacked monolithic substrates, input and output fibers and waveguide paths as taught by Duguay in the apparatus of Uehara in order to achieve an integrated and compact structure.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara US Patent 6,256,125 in view of Duguay U.S. Patent 5,671,304 and further in view of Solgaard et al U.S. Patent 6,097,859.

Art Unit: 2872

Regarding claim 12, Uehara in view of Duguay teaches the invention as set forth above but does not teach that each of the substrates of the first stack demultiplex the lambda signals by wavelength using a wavelength dependent optical index.

Solgaard et al does teach that each of the substrates of the first stack demultiplex the lambda signals by wavelength using a wavelength dependent optical index as described in column 2, lines 54-56.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the wavelength dependent optical index to demultiplex the optical signals as taught by Solgaard et al in the apparatus of Uehara in view of Duguay in order to achieve a more compact demultiplexing device.

Allowable Subject Matter

5. Claims 16-21, 41 and 54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 46-51 and 64 are allowed.

7. Claim 46 is allowable and links claims depending therefrom. Accordingly, the restriction requirement as to the encompassed inventions is hereby withdrawn and claims 47 and 51 are no longer withdrawn from consideration since these claims depend from or otherwise include each of the limitations of an allowed linking claim.

8. In view of the above noted withdrawal of the restriction requirement as to the linked species, applicant(s) are advised that if any claim(s) depending from or including all the limitations of the allowable generic linking claim(s) be presented in a continuation

Art Unit: 2872

or divisional application, such claims may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

9. Claim 16 is allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest, "an alignment plate mounted onto the first stack of substrates" as set forth in the claimed combination. Claims 17-21 are also allowable due to their dependency on claim 16.

Claim 41 is allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest, "a first alignment plate to align a first stack of substrates" as set forth in the claimed combination.

Claim 46 is allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest, "aligning the first plurality of substrates in the first stack by positioning each of the first plurality of substrates to a position where a plurality of detectors on an alignment plate" as set forth in the claimed combination. Claims 48-50 are also allowable due to their dependency on claim 46.

Claim 54 is allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest, "an alignment plate is used to align the second stack of substrates" as set forth in the claimed combination.

Claim 64 is allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest, "an element configured to equalize the power of the demultiplexed lambda signals at the output of the second stack of substrates" as set forth in the claimed combination.

The prior art of record, Uehara and Duguay teach an apparatus comprising, a plurality of input fibers, a first stack of substrates coupled to the input fibers and configured to demultiplex signals carried on the input fiber by wavelength, a plurality of output fibers and a switching matrix configured to switch the demultiplexed signals from the first stack of substrates to the plurality of output fibers. However, the prior art does not teach an alignment plate utilizing an alignment plate and there is no motivation or teaching to modify this difference as derived.

Response to Arguments

10. Applicant's arguments with respect to claims 1, 8-11, 13, 37, 43, 45 and 52 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2872

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alessandro V. Amari whose telephone number is (703) 306-0533. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (703) 305-0024. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ava/117
06 January 2004


MARK A. ROBINSON
PRIMARY EXAMINER